

REMARKS

Claim Status

Applicants acknowledge the allowance of claims 21 and 22, as well as the indication that claims 5, 6 and 14 contain allowable subject matter. Claims 1, 3-16 and 18-23 were heretofore pending. Claim 1 has been amended. No new matter has been added. Reconsideration of the application, as amended, is respectfully requested.

Overview of the Office Action

Claims 1, 3, 4, 7, 10, 11, 13, 15, 16, 19, 20 and 23 stand rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent Publication 2003/023123 (“*Ushirogouchi*”). Claims 1, 4, 17 and 20 stand rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,523,948 (“*Matsumoto*”), while claims 3, 7 and 12 stand rejected under 35 U.S.C. §103(a) as being obvious over *Matsumoto* in view of U.S. Patent No. 6,746,115 (“*Tomotake*”). Claims 1, 3, 4, 7, 10, 11, 13, 15, 16, 19, 20 and 23 stand rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent Publication 2003/0128264 (“*Ishikawa*”). Claims 8, 9 and 12 stand rejected under 35 U.S.C. §103(a) as being obvious over *Ushirogouchi* in view of *Tomotake*. Claims 11, 13 and 16 stand rejected under 35 U.S.C. §103(a) as being obvious over *Matsumoto* in view of *Tomotake*, and further in view of U.S. Patent No. 6,460,990 (“*Yraceburu*”). Claims 8 and 9 stand rejected under 35 U.S.C. §103(a) as being obvious over *Matsumoto* in view of *Tomotake*, and further in view of EP 0 307 251 (“*Tasaki*”). Claims 10 and 15 stand rejected under 35 U.S.C. §103(a) as being obvious over *Matsumoto* in view of *Tomotake*, and further in view of U.S. Patent No. 5,287,123 (“*Medin*”). Lastly, claim 18 stands rejected under 35 U.S.C. §103(a) as being obvious over *Matsumoto* in view of U.S. Patent No. 6,619,777 (“*Chang*”).

Patentability of the Claims under 35 U.S.C. §102

Applicants have carefully considered the Examiner's rejection, and the comments provided in support thereof, and respectfully disagree with the Examiner's analysis. For the following reasons, Applicants respectfully assert that all claims of the present application are patentable over the cited references.

Independent claim 1 recites the limitation of a "temperature controlling mechanism for controlling the temperature of the recording medium which is carried by the carrying section within a preset target temperature range," and that the temperature is controlled "before the jetted ink is received on the recording medium".

In the present invention, the temperature of the recording medium is controlled by the temperature controlling mechanism so as to be within the preset target temperature range. As a result, the temperature of the recording medium can be kept substantially constant. Consequently, jetted ink received on the recording medium can obtain a temperature in which the ink is sufficiently cured, and the recording medium can obtain a temperature at which curing of the ink dots is not adversely affected by the ambient humidity. As a result, the jetted ink received on the recording medium can be cured in a short time by radiation of the ultraviolet ray. This permits stabilization of a diameter of jetted ink dot received in the recording medium. See pages 5 and 21-23 of the originally filed specification.

Ushirogouchi relates to "an ink jet recording apparatus that permits obtaining a printed material by using a liquid ink" and to providing "a liquid ink that eliminates the need to use an organic solvent and a bulky light exposure system in order to obtain a high quality print" (see paragraph [0016] to [0017]. *Ushirogouchi* fails to disclose "controlling the temperature of the recording medium which is carried by the carrying section within a preset target temperature range,

before the jetted ink is received on the recording medium,” as recited in amended independent claim

1. The embodiments depicted in FIGS. 1, 10 and 11 of *Ushirogouchi* are the only ones that show use of heater 6. In FIG. 1, heater 6 is arranged downstream of the recording head 4 in the feeding direction of the recording medium 2. Consequently, the temperature of the recording medium 2 is controlled only after the jetted ink is received on the recording medium by the recording head 4.

FIG. 10 discloses an image carrier in the form of drum 18a which transfers the image to the recording medium 2 at transfer roller 19. Recording head 4 spouts ink unto drum 18a. Rotation of drum 18a then brings the ink around to heater 6. Thus, the temperature of drum 18a is controlled after the ink is applied to drum 18a.

FIG. 11 discloses an image carrier in the form of belt 18b which transfers the image to the recording medium 2 at transfer roller 19. For our present purposes, the arrangement of belt 18b is similar to drum 18a in that the heater 6 controls the temperature of belt 18b after the ink is applied to belt 18b.

Therefore, *Ushirogouchi* fails to teach a “temperature controlling mechanism for controlling the temperature of the recording medium which is carried by the carrying section within a preset target temperature range,” and that the temperature is controlled “before the jetted ink is received on the recording medium.”

Matsumoto relates to “an ink jet printer that comprises at least one ink jet head, including plural nozzles arranged in an array in a main scan direction, for ejecting a droplet of ink onto recording material at an ejected amount according to information of an image” (see col. 1, lines 55-60). The Abstract of *Matsumoto* states that the “system controller sets dry heat energy according to the ejected amount.” See also col. 6, lines 17-19 which refer to heat control based

on "ejected amount." As a result, the heating region is not for controlling the temperature of the recording medium within a present target temperature range, as called for in claim 1. Therefore, *Matsumoto* fails to teach a "temperature controlling mechanism for controlling the temperature of the recording medium which is carried by the carrying section within a preset target temperature range".

Ishikawa discloses a technique in which ink heated to a high temperature ink, e.g., 60°C to 180°C, is ejected on a recording medium, and thereafter the ejected ink is cooled quickly. In contrast, the present invention does not use ink that is ejected at a high temperature nor does the present invention seek to cool the ink ejected on the recording medium quickly. The present invention causes the temperature of the ink ejected on the recording medium to remain substantially constant.

In view of the foregoing, independent claim 1 is patentable over *Ushirogouchi*, *Matsumoto* or *Ishikawa*. Consequently, reconsideration and withdrawal of the rejections under 35 U.S.C. §102 are in order.

Arguments presented above regarding "a preset target temperature range" with respect to claim 1 also apply to independent claim 23. In addition, claim 23 includes the feature of having the "the active energy ray ... radiated in 0.001-2.0 seconds after the jetted ink is received on the recording medium." The Examiner contends that this feature is shown in paragraph [0191] of *Ushirogouchi* paragraphs [0110] to [0115] of *Ishikawa*. However, the undersigned has been unable to find support for the Examiner's contention in the locations pointed to by the Examiner. Therefore, should the Examiner choose to maintain this rejection, he is respectfully requested to be more precise by preferably quoting the wording being relied on.

Patentability of the Claims under 35 U.S.C. §103

For the following reasons, Applicants respectfully assert that all claims of the present application are patentable over the combination of the cited references.

Tomotake relates to a method for ink-jet image recording for improving glossiness, resistive friction and the smoothness difference between the image area and the non-image area (see col. 1, lines 7-9). However, *Tomotake* fails to cure the above-described deficiencies of the other applied references.

Yraceburu relates to a non-warping heated platen that uses tight controls in the axial direction between a planar heater used to heat print media passing across the heater and a rigid planar base to which it is coupled (see Abstract). *Yraceburu* also fails to cure the above-described deficiencies of the other applied references.

Tasaki relates to an ink jet recording apparatus that is provided with a fixing heater for accelerating the fixation of ink deposited as a recorded image on a recording medium (see pg. 2, lines 8-10). However, *Tasaki* also fails to cure the above-described deficiencies of the other applied references.

Medin discloses “a color ink-jet printer having a heating blower system for evaporating ink carriers from the print medium after ink-jet printing” (see Abstract). However, *Medin* also fails to cure the above-described deficiencies of the other applied references.

Chang discloses “a liquid jet apparatus and method for ejecting liquid drops of a plurality of kinks different in volume from the same nozzle opening” (see col. 1, lines 7-10). *Chang* also fails to cure the above-described deficiencies of the other applied references.

In view of the foregoing, independent claims 1 and 23 are patentable over the prior art references relied on by the Examiner, whether applied singly or in combination. Consequently, reconsideration and withdrawal of all the rejections under 35 U.S.C. §103 are in order.

Dependent claims

In view of the patentability of independent claims 1, 21, 22 and 23, for the reasons presented above, each of dependent claims 2-20 is patentable therewith over the prior art.

Conclusion

Based on all of the above, it is respectfully submitted that the present application is now in proper condition for allowance. Prompt and favorable action to this effect and early passing of this application to issue are respectfully solicited.

Should the Examiner have any comments, questions, suggestions or objections, the Examiner is respectfully requested to telephone the undersigned in order to facilitate reaching a resolution of any outstanding issues.

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Amdt. dated XXX, 2005
Reply to Office Action of June 13, 2005

It is believed that no fees or charges are required at this time in connection with the present application. However, if any fees or charges are required at this time, they may be charged to our Patent and Trademark Office Deposit Account No. 03-2412.

Respectfully submitted,

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